

soul tasted satisfying joys, but at the same time Henri Poincaré served his country faithfully and well."

M. Jules Claretie then saluted for the last time the mortal remains of his colleague of the French Academy:—

"In the name of the French Academy, I have the honour of saluting Henri Poincaré on behalf of a company of which he was justly one of the most illustrious members. When his colleagues called him, not yet thirty-two years of age, to take his place amongst us, it was a poet that this mathematician, this geometer, this philosopher, this poet of the universe succeeded. And, from the first day, we were conquered by the simple and limpid eloquence of this master writer, who, knowing everything, verifying everything, illuminated with his definitions, animated with his observations, and guided with his counsels our researches, the study of our language.

"It is not to-day, nor is it here, that one must study the work of this great man, who, scarcely full-grown, had already at one bound mounted to the summits. One might say, in many and eloquent tones, how much the country owes to this son of the borders of Lorraine, to this child of Nancy, who has shed lustre upon the whole of France. Before his grave the French Academy can only express its sorrow, and deplore the loss of a great seeker after truth, that stopped all too soon in the midst of his work. He would be a bold man who would assess the worth of a scholar. In celebrating his fame, we can only do homage to a philosopher whose thoughts will have so fertile, so profound an action on the new generations.

"Passion for scientific truth did not suffice for him, he loved literary beauty, and this incomparable mathematician was a strong supporter of good writing, of those humanities which for so long have guided the French genius along a right and a safe road. One might hear him, when the dictionary was under discussion, ask about the origin, and, as it were, the titles of nobility of words. This modern, who stimulated contemporary life by his discoveries and his calculations, defended with boldness the heritage of our ancestors. He knew that the French language is itself a country, and, against every perilous invasion, this soldier of sound speech stood firmly at the frontier."

MM. Appel and Bigourdan then spoke in the name of the Faculty of Science and of the Bureau of Longitudes. They recalled the excellent qualities of the professor, and the gap which would be left in the University by his premature death.

It fell to M. Paul Painlevé to display, in the name of the Academy of Sciences, the colossal work of the mathematician, who had acquired a universal fame, and whose life had been only "an intense and uninterrupted meditation." He concluded:—

"The Lacedæmonian hero said, when dying after two victories, that he left behind 'two immortal

daughters.' The hero of thought who has just passed away, he too has left in the world of ideas an immortal posterity, which will guide in the future the researches of mankind. His life will remain as an example equally harmonious in the faultlessness of its line with the orbits of those stars of which he sought to know the eternal future and the eternal past. But the blow which snatched him away is too cruel, the wound is too open for such thoughts yet to comfort us. In the name of the sorrow-stricken Academy of Sciences, in the name of his bereaved colleagues, I offer to the sublime thinker upon whose face we shall never gaze again a supreme homage and a supreme adieu."

Finally, after some words from General Cornille, Commandant of the École Polytechnique, who spoke a last farewell to the late professor of Astronomy, the interment was completed in the family vault.

NOTES.

THE presidents of the Royal Society and the Royal College of Surgeons recently took the necessary steps for the formation of a large and representative committee for the purpose of establishing a memorial to the late Lord Lister, and such a committee was appointed, and met on Monday afternoon last, at the rooms of the Royal Society under the chairmanship of Sir Archibald Geikie, P.R.S., when the following and others were appointed an executive committee to recommend to a future meeting of the general committee a scheme for the memorial to Lord Lister, and to organise an appeal for subscriptions:—The Archbishop of Canterbury, the Lord Chancellor, the Viscount Iveagh, K.P., the Lord Rayleigh, O.M., F.R.S., the Lord Rothschild, G.C.V.O., the Lord Alverstone, Lord Chief Justice, the Right Rev. Bishop Ryle, Dean of Westminster, the Right Hon. the Lord Mayor of London, the Right Hon. the Lord Provost of Edinburgh (Sir W. Brown), the Hon. the Lord Provost of Glasgow (Mr. D. M. Stevenson). Lord Rothschild and Sir W. Watson Cheyne were appointed treasurers, and Sir John Rose Bradford was appointed secretary of the committee. Proposals for a memorial of an international character were considered at a meeting of the executive committee, held also on Monday, and arrangements were made for a public meeting in furtherance of the objects of the memorial to be held at the Mansion House in October, at which details of the scheme will be announced. Communications for the treasurers or the secretary may be addressed to the Royal Society, Burlington House, London, W.

A DEPARTMENTAL committee, consisting of Sir H. Freer-Smith, C.S.I., R.N. (chairman), Prof. J. E. Petavel, F.R.S., Prof. J. Lorrain Smith, F.R.S., Mr. G. H. Ewart, and Mr. H. Cummins, with Mr. D. R. Wilson, H.M. Inspector of Factories, as secretary, has been appointed by the Home Secretary to inquire and report what amendment (if any) of the regulations for the spinning and weaving of flax or tow,

and the processes incidental thereto, is expedient in view of the report of the departmental committee on humidity and ventilation in cotton-weaving sheds or on other grounds.

THE honour of knighthood has been conferred on Mr. Francis Fox, the engineer, who has been closely associated with the work of securing the safety of Winchester Cathedral.

SIR TREVOR DAWSON, R.N., has accepted the presidency of the Junior Institution of Engineers, in succession to Mr. Marconi.

THE Lucy Wharton medal has been awarded by the Board of Managers of the Museum, University of Pennsylvania, to Sir M. Aurel Stein, for his explorations in Central Asia. The medal is conferred only upon English-speaking explorers.

THE Edward Longstreth medal of merit of the Franklin Institute, Philadelphia, has been awarded to Messrs. O. Schreiner and E. C. Lathrop for their paper on "The Distribution of Organic Constituents in Soils," which appeared in the issue of the *Journal of the Franklin Institute* for August, 1911.

THE medal of the Royal Bavarian Academy of Science has been awarded to Dr. C. C. Hosseus, of Berchtesgaden, for his journey in Siam.

THE erection of a tablet in the buildings of the University of Liverpool in memory of the late Sir Rubert Boyce is in contemplation, but the position for it has not yet been decided upon.

THE new dock at Immingham, Lincolnshire (the largest on the east coast), was opened by the King on Monday last. It will be known as the King's Dock. In connection with the ceremony, Mr. Sam Fay, the general manager of the Great Central Railway Co., received the honour of knighthood.

THE Middleton Goldsmith lectures will be given before the Pathological Society of New York by Dr. E. F. Bashford, director of the Imperial Cancer Research Fund, on October 2, 3, and 4 next. Dr. Bashford will deliver the Von Leyden memorial lecture in Berlin on October 21 next.

It is announced that the following lectures are to be delivered at the forthcoming International Congress of Applied Chemistry which, as already stated in these columns, is to take place in September next:—"The Rôle of the Infinitely Small in Biological Chemistry," by Mr. G. Bertrand, of Paris; "Oxidation of Atmospheric Nitrogen in Norway," by Mr. S. Eyde, of Christiania; "The Most Recent Problems of Chemical Industry," by Mr. C. Duisberg, of Elberfeld; "Permanent Fireproofing of Cotton Goods," by Prof. W. H. Perkin, F.R.S., of Manchester; "Synthetic Ammonia," by Mr. H. A. Bernthsen, of Ludwigshafen; "The Photochemistry of the Future," by Mr. G. Ciamician, of Bologna; and "Priestley in America," by Prof. Ira Remsen.

THE Institution of Mechanical Engineers will meet in Belfast on July 30 and 31, when the following papers will be communicated:—new graving dock,

Belfast: mechanical plant and general appliances, by Mr. W. R. Kelly; rolling stock in use on the principal Irish narrow-gauge railways, by Mr. R. M. Livesey; the evolution of the flax-spinning spindle, by Mr. J. Horner; wire ropes for lifting appliances, and the conditions that affect their durability, by Mr. D. Adamson; reciprocating straight-blade sawing machines, by Mr. C. Wicksteed; and commercial utilisation of peat for power purposes, by Mr. H. V. Pegg.

A CONFERENCE was held last week at the Mansion House to consider the desirability of forming a Central Health Committee for London which would promote joint action between metropolitan municipal authorities and voluntary health agencies in the prevention of disease and in the education of all classes in matters of health and domestic hygiene. It was resolved to form such a committee, and the motion that certain authorities and voluntary agencies be invited to appoint representatives upon the committee, with power to add to its number, was also carried. It was further resolved that the Social Welfare Association for London be requested to take steps to give effect to the resolutions, and that the Local Government Board be asked to allow the committee to meet at the offices of the Department.

THE first conference of the International Association of Poultry Instructors and Investigators took place last week in London, and was attended by representatives from twenty-seven countries. Lord Lucas, Parliamentary Secretary of the Board of Agriculture, welcomed the delegates on behalf of the Government, and stated in his remarks that an important project on foot is the establishment of a national poultry institute, where all practical questions regarding poultry can be scientifically studied, and where there can be trained the instructors who will be employed by the county councils to teach the farmers. As a result of the reorganisation now taking place, and thanks to the assistance of the Development Commission, it is hoped that in the course of the next few years poultry-keeping will be taught on the most approved lines all over the country. The association has been formed at a most auspicious moment. Mr. E. Brown was elected the first president of the association, and Dr. Raymond Pearl the hon. secretary.

SPEAKING at the meeting held last week at the Foreign Office in furtherance of the recently issued appeal for 100,000l. on behalf of the London School of Tropical Medicine, Sir Edward Grey, the Secretary for Foreign Affairs, said he would divide the work which appealed to them into two heads—the question of cure and the question of prevention. When they came to think that the men who went to tropical countries, either in the public service or in commercial fields, were some of the most courageous, enterprising, and self-sacrificing of our people, that they went willingly, fascinated by the work before them, that they braved all those risks and then often contracted one of those tropical diseases which left them no hope, but a few months' lingering suffering, followed by certain death, they could have nothing more tragic and

nothing to stir their sympathy more. Happily there were people now completely recovered whose cures were due solely to the research work of the School of Tropical Medicine. They could not create new countries, but they could make habitable countries which were previously uninhabitable, which was the next best thing. A work like the Panama Canal was an instance of human power which appealed to their imagination; but there was an even greater instance of human power in the fact that the district through which the Canal ran, by work closely akin to that of the School of Tropical Medicine, had been changed from a pestilential, blighted, and doomed district to one fit for habitation. That was a great conquest, and the triumphs which were being achieved by such institutions as the School of Tropical Medicine were the greatest instances of man's power over nature that they had had in the history of the world.

PROF. JOHANNIS CHATIN, of Paris, who has just died at Essarts-le-Roi, at the age of sixty-five years, was responsible for the inauguration of courses of instruction in comparative histology at the Sorbonne, while he occupied the position of *professeur adjoint* in zoology. So successful was this innovation that in 1899 a special chair of comparative histology was founded for M. Chatin. Most of his original work was done in the special field which he cultivated so assiduously as a teacher; and more than thirty years ago, while acting as a demonstrator under Milne-Edwards, he wrote a comprehensive memoir on the structure of sense organs in the animal series. Like Prof. Blanchard, to whose place in the section of anatomy and zoology at the Academy of Sciences he succeeded twelve years ago, he devoted considerable attention to the study of the parasites of animals. Like his father, the botanist, and former director of the Paris School of Pharmacy, Prof. Chatin was a member of both the Academies of Medicine and Sciences, and was also the president of the Army Medical Officers' Reserve.

THE proprietors of *The Bioscope*, the trade journal of the cinematograph industry, have been requested by members of the London County Council to arrange a demonstration of the possibilities of the cinematograph in education at the County Hall, and it will be held to-day. The films to be shown have been selected with the view of illustrating the subjects which could be assisted educationally by the cinematograph. The subjects to be dealt with will include, among others, zoology and botany. An attempt will be made to prove that the cinematograph would be useful in almost every grade of teaching.

WE learn from *Science* that in the autumn of last year funds were provided by the Department of Industrial Research of the University of Pittsburgh for a thorough investigation of the smoke problem. At the present time the study is being carried on by no fewer than twenty-five investigators, seven of whom are giving their whole time to the work. The inquiry ranges over the following branches of the subject:—The effect of smoke and soot on the atmosphere, on the weather, on plant life, on buildings,

on the public health, the economic damage done by smoke and soot, the mechanical devices for preventing or abating smoke, the chemistry and physics of smoke and soot, and the laws concerning the smoke nuisance. Recognising the interest in the smoke problem manifested by a large number of American cities, and in response to inquiries that have been made, the department announces that members of its staff are prepared to lecture on the various phases of the problem.

THE curator of the museum at Nottingham Castle publishes a paper by Dr. F. Oswald on recent excavations at the Roman Camp of Margidunum, near Bingham, Notts. The place lies on the Fosse Way between Leicester and Lincoln, and was evidently occupied as an important strategical position from a very early period. A rough, unpolished bronze celt found here indicates a manufactory of such weapons, and patches of charcoal containing nodules of iron slag show that iron was smelted here in rude open-air forges such as are found at the present day in various parts of Africa. At a later time the fort was occupied and strengthened by the Romans. It has been as yet only imperfectly explored, but from a survey of the remains discovered it is clearly a promising site which deserves further examination.

IN the June issue of the Museum Journal of the University of Philadelphia, a curious Babylonian tablet of baked clay is described. It bears on one side a copy of an inscription of Sargon, dated about B.C. 2600, which was copied by a scribe in the days of Nabonidus (B.C. 555–538). The latter monarch, in his zeal for the restoration of ancient buildings, seems to have employed a college of antiquaries to direct the work, and one of these officers, finding the ancient tablet in the course of the excavation, copied it, as a record, before it was rebuilt into the new temple.

UNDER the title of "Visvakarma," the name of the architect of the Hindu pantheon, Mr. A. K. Coomaraswamy has begun publishing a series of reproductions from photographs illustrating various forms of Indian art. The present instalment will supply one hundred examples of Indian sculpture—Buddhas, deities, saints, and animals. Each number contains a dozen photographs, issued at the price of 2s. 6d. The publication would be much more valuable if some descriptive letterpress were added to each illustration.

IN the July number of *The Child*, Gertrude Austin gives an account of heliotherapy as applied to tuberculous children at Leysin at an altitude of 5000 feet. The children are exposed nude to the sun's rays in galleries open to the south. It is claimed that under this treatment the patients rapidly improve, fever disappears, hæmoglobin increases, and open wounds soon heal.

A REPORT of the meeting of the Society of American Bacteriologists is given in *Science*, March 8, 1912. Abstracts of several of the papers appear, together with Dr. Gorham's presidential address on some biochemical problems in bacteriology, in which he pleads

for a more extensive use of synthetic culture media, and a summary of a report on the teaching of microbiology in colleges of the United States and Canada.

WE have received the Livingstone College Year Book for 1912, which contains particulars of the curriculum, notes from old students, &c. The college is doing excellent work in training missionaries in the elements of medicine.

IN an interesting and well-illustrated article by Mr. George Shiras in the May number of *The National Geographic Magazine* on the white sheep, giant moose, and the smaller game of the Kenai Peninsula, Alaska, the remarkable fact is recorded that the first-named animal invariably slakes its thirst by eating snow, and when feeding in a well-watered pasture, always resorts to a snow-patch for moisture.

IN a paper on crocodilian remains from the upper Tertiaries of Parana, published in vol. xxi. of *Anales del Museo Nacional de Buenos Aires*, Mr. C. Rovereto refers two out of three species to the genus *Alligator*, with the proviso that they may belong, as they almost certainly do, to *Caiman*. The third species, which was described by Burmeister as *Rhumphostoma neogaeum*, is referred to the existing Indian genus *Garialis*, a reference which is less remarkable than it might at first sight appear, when it is borne in mind that crocodilians of the same general type have left their remains in the European Cretaceous and Eocene.

IN the same issue (*An. Mus. Nac. Buenos Aires*, vol. xxi.) Mr. A. Cardoso adduces evidence to show that wild horses were in existence in La Plata in the sixteenth century, and that the modern Argentine horse is their direct descendant, the ancestral form being *Equus reitidens* of the Pampean formation, which exhibits certain osteological peculiarities common to the Argentine horse and the extinct *Hippidium*.

AN important contribution to our knowledge of the dentition of shrewmice is made by Dr. Augusta Årn-bäck-Christie-Linde in the June number (ser. 8, vol. ix.) of the *Annals and Magazine of Natural History*. The formula of the typical genus *Sorex* is considered to be $i.\frac{3}{3}, p.\frac{1}{2}, m.\frac{3}{3}$, and in none of the genera is there a canine, the tooth in *Myosorex* which has been classed as such being a premolar. The presence in the common shrewmouse (*S. araneus*), and probably in the water-shrew (*Neomys fodiens*), of the germs of more than three pairs of incisors has been demonstrated, this serving to link the *Soricidae* with opossums and other polyprotodont marsupials, all of which probably had a common ancestry. Other rudiments indicate the former existence of a full series of premolars in shrews. In *Sorex*, *Neomys*, and *Crocidura* (musk-shrews) there is evidence of a rudimentary milk dentition, while there are likewise indications of the former occurrence in the family of a pre-lacteal dentition.

WE have received copies of several bulletins and leaflets issued by the Entomological Division of the Canadian Department of Agriculture relating to the economic aspect of insects in the Dominion. In one

leaflet attention is directed to the damage inflicted on forests by insects, which is regarded as equally serious with that due to fires. The means of controlling insect pests generally forms the subject of Bulletin No. 4; cut-worms and army-worms are discussed in No. 3; while No. 2 is devoted to bee-culture in Canada.

THE remarkable fact that considerable quantities of free prussic acid are accumulated in the living tissues of certain plants was observed by the late Dr. M. Treub, and there appears to be little doubt that this poisonous acid is actually utilised as food material by these plants. Some interesting details concerning the occurrence and function of prussic acid in the cherry laurel are given by Pêche (*Sitzungsber. kais. Akad.*, Vienna, 1912), who concludes from his observations that the prussic acid found in the leaves and other organs is produced as a direct result of carbon-assimilation in the green leaf-cells when exposed to light, and that it is not merely a product of the hydrolysis of glucosides. Pêche found evidence that while part of the prussic acid enters into the building up of glucosides, some of it is transported in a labile form, probably in loose combination with a tannin, and is stored up in various tissues as a reserve food.

SOME notable contributions have recently been made to the knowledge of the lower fungi, including the Chytridiaceæ and allied forms. The relationships of these lowly groups are discussed in a paper by Nemec (*Bulletin Internat. Acad. Sci.*, Prague, 1911), in which a new genus of Chytridiaceæ, named *Sorolpidium betae*, is described. This parasite lives in the outer cortical cells of beetroot, but does not appear to cause any hypertrophy of the infected root. The organism consists of a naked multinucleate mass of protoplasm, which eventually acquires a wall and divides into a number of uninucleate portions which round off and become sporangia, each sporangium giving rise to a number of zoospores; in some cases the entire plasmodium becomes a sporangium, while in other cases still the plasmodium gives rise to a thick-walled resting cyst, which later produces zoospores. From his work on *Sorolpidium*, Nemec considers that there is a close affinity between the Chytridiaceæ and the Plasmodiophoraceæ, though the latter are usually regarded as being nearly allied to the Mycetozoa, and therefore to Protozoa, while the Chytridiaceæ have generally been placed at the base of the Phycomycetes or alga-like fungi. In the same journal, Nemec describes another new Chytridiaceous fungus, *Olpidium salicorniae*, with a fine series of figures illustrating the various stages in the life-history.

THE need of a handbook on the forest resources of India was pointed out in the report of the committee of the Franco-British Exhibition of 1908, with the result that the Indian Government decided upon having such a work prepared. This important work was entrusted to Mr. R. S. Pearson, of the Imperial Forest Service, and has just been published under the title "Commercial Guide to the Forest Economic Products of India" (Calcutta, 1912, price 1s. 6d.). This

handbook, which is accompanied by an excellent map showing the distribution of the Government forest areas in India and Burma, is divided into three parts. The first part deals with the distribution and classification of the many types of forest found in British India, with notes on the financial working of this enormous State property; the second with eighty of the commoner timber trees of India and Burma, explaining briefly the distribution, quality, and uses of the timber, its approximate value and yield in various localities, and so forth; the third with the minor products, such as gums, fibres, resins, tan and dye products, oil seeds, drugs, spices, bamboos, and a variety of others. The work is illustrated by several plates, and there is a comprehensive index of vernacular, English, and scientific names.

IN *The South African Journal of Science* for June, Prof. E. H. L. Schwarz continues his comparison of the Witwatersrand area and the Cape Province, and expounds the probable relations of the network of dolerite dykes in the Karroo area to an unseen laccolite below. He is a strong supporter of the assimilation theory to account for the bringing of igneous matter into place, and he holds that unsuitable substances become drained off to lower depths. New material, however, is added to the upper layers of the crust, and the resulting increase in bulk has set up thrusts which have influenced the slope of the folds in the coast-ranges of the Cape Province. The Bushveld granite, from the same point of view, has caused repeated folding in the blankets of the Rand.

DR. W. F. HUME has again earned the gratitude of geologists by publishing "Explanatory Notes to Accompany the Geological Map of Egypt" (Cairo: Survey Department, 1912, price 10 P.T.). A large amount of stratigraphical information is embodied in a series of tables, and the coloured longitudinal section across Egypt will be useful to many teachers. The relations of the Cenomanian limestones north of latitude $27^{\circ} 50'$ to the Nubian sandstone are interestingly stated.

AN interesting article on "Wind and Weather in the Adriatic," by Prof. E. Mazelle, director of the Marine Observatory at Trieste, is printed in the *Oesterreichische Rundschau* (vol. xxxi., part iii.). After giving a popular explanation of conditions obtaining in barometric maxima and minima, in connection with gradients, rotation of the earth, and centrifugal force, the author gives a very instructive account of the prevalent winds in the above sea, viz. the cold and dry north-east wind (bora) and the warm and moist south-east wind (sirocco). The bora occurs both in cyclonic and anticyclonic conditions; in the first case the depression lies in the Mediterranean or in the Adriatic, and the weather is usually rainy. In the second case the bora is mostly restricted to the coastal districts, and is very violent and gusty. The greatest velocity observed at Trieste was 84 miles an hour (? factor 3); during gusts the velocity exceeds 100 miles per hour. The sirocco also occurs both in cyclonic and anticyclonic conditions. In the former case the rainfall in the southern

Adriatic reaches abnormal amounts, and near the Gulf of Cattaro one of the wettest spots of Europe is to be found. The anticyclonic sirocco, caused by high pressure east and south-east of the Adriatic, is the more violent of the two, and is only occasionally accompanied by rain.

WITH reference to the meteorological charts of the great oceans and lakes published by the U.S. Weather Bureau for August, we wish to direct attention to a very useful set of charts showing monthly wind directions over the monsoon area of the North Indian Ocean, prepared by Mr. W. E. Hurd. The charts are accompanied by an interesting discussion of the usual behaviour of the winds over the seas on both sides of the great Indian Peninsula which "causes the most important phenomenon of the monsoon, the summer rains, or the south-west monsoon, by its influence in changing the winds." The gradual overpowering of the north-east trade-winds by the south-west monsoon as the warm season draws on is clearly shown by the monthly wind-stars.

ACCORDING to the kinetic theory in its simplest form the viscosity of a gas should vary as the square root of the absolute temperature of the gas. The considerable deviations from this law found experimentally were first explained by Sutherland in 1893. He showed that the molecules exert an appreciable attraction on each other before an encounter actually takes place, and that if this attraction is taken into account the viscosity should vary as the square root of the absolute temperature t , divided by $1+c/t$, when c is a constant for each gas. This expression has been verified by experiments on many gases at temperatures above 0° C. According to the *Verhandlungen* of the German Physical Society for May 15, Dr. O. Zimmern has determined the viscosity of ethylene and carbonic oxide at temperatures down to -150° C., and finds that Sutherland's expression no longer holds at these low temperatures. The deviation is slight in the case of carbonic oxide, but considerable in the case of ethylene. In both gases the viscosity is greater at low temperatures than the formula makes it, with the value of c for higher temperatures. Dr. Zimmern finds that the density of the gases is also high at these temperatures, and is disposed to attribute the high values of both quantities to polymerisation in the gases at low temperatures.

THE July issue of *The Chemical World* fully maintains the high standard of the six preceding numbers. The editor has produced an attractive blend of modern technical and analytical practice with advanced scientific research. In the current number, the technical papers deal with the new industry of manufacturing autogenously welded aluminium tanks and vessels, the manufacture of "Mond gas," the treatment of water by the "Permutit" system and its sterilisation by the addition of excess of lime. The analytical papers deal with the estimation of potash in fertilisers, soil extracts, and plant ashes by the use of perchlorate instead of platinum salts, the examination of cellulose, the estimation of nickel and cobalt with the help of dimethylglyoxine, and of

nitrites with the help of salicylic acid and of diphenylamine. The scientific papers deal with the synthesis of alkaloids, magnetic susceptibility, and the allotropy of sulphur. There is also an excellently illustrated article on the scientific department of the Imperial Institute. The journal is performing a very real service in presenting in popular form a review of some of the most striking developments in the science and practice of chemistry.

OUR ASTRONOMICAL COLUMN.

RADIUM AND THE SOLAR CHROMOSPHERE.—In No. 4589 of the *Astronomische Nachrichten*, Prof. Dyson directs attention to a possible relationship between the six principal lines in the spark spectrum of radium, as determined by Runge and Precht, and certain lines recorded by himself and Sir Norman Lockyer in the spectrum of the chromosphere observed at various eclipses. The agreement between the wavelengths is shown in the following table:—

Radium spark		Chromosphere	
λλ	Int.	Dyson λλ	Lockyer λλ
(1) 3649·75 ...	50	3649·66 ...	— ...
(2) 3814·58 ...	100	3814·67 ...	3814·7 ...
(3) 4340·83 ...	50	Hγ	Hγ
(4) 4436·49 ...	20	— ...	4436·6 ...
(5) 4682·36 ...	50	4682·20 ...	4682·5 ...
(6) 4826·12 ...	20	— ...	4826·0 ...

The first line is identified by Dyson in the chromosphere as an iron line, while Fe and p-Ti are given by Lockyer for the second. The third would be hidden by the Hγ line in the eclipse spectrum, and the fourth is near a manganese line; other strong lines of manganese are, however, absent. The fifth line is given by Lockyer as possibly due to proto-yttrium, and most of the other strong enhanced lines of this element are possibly represented in his 1898 record of the chromospheric spectrum. For the sixth line, weak in the chromosphere, no other origin has been suggested.

Prof. Dyson also compares the spectrum of radium emanation, given by Dr. Royds, with that of the chromosphere, but arrives at no conclusive result. He suggests, however, that the coincidences already found are worthy of further attention.

PHOTOMETRIC OBSERVATIONS OF MIRA.—From observations made at Catania, Prof. Bemporad finds that a minimum of the variable star *o* Ceti occurred on January 20, four days earlier than the date predicted by the Guthnick ephemeris; the magnitude at minimum was 9·6. The observations were carried right through from the previous maximum (mag. = 3·4), which took place on June 26, 1911, also four days before the predicted time. The date of the minimum is confirmed by Prof. Nijland, who, with a telescope "finder" at Utrecht, found the minimum magnitude to be 10·1. (*Astronomische Nachrichten*, No. 4589.)

THE ECLIPSE OF APRIL 17.—A large number of photographs and accounts of the April eclipse of the sun is published in the July number of *L'Astronomie*. Of special interest are the reproductions of series of pictures from cinematograph films. On one strip, taken by M. Lobo at Ovar, at central phase, the sun is represented by six or seven disconnected bright dots, the only suggestion of a continuous limb being that the dots are obviously on the circumference of a circle. A photograph taken from the balloon "Le Globule," apparently shows traces of the corona.

A complete set of fifty-four photographs taken at the Hamburg Observatory is reproduced, with other

photographs, in No. 4584 of the *Astronomische Nachrichten*, while in No. 4587 of the same journal, Dr. K. Graff gives an interesting sketch of the moon's profile and a set of curves showing the distribution and relative heights of the various mountains.

A SECOND METEORITE FIND IN SCOTT COUNTY, KANSAS.—A roughly wedge-shaped fragment of a meteorite, weighing about 1900 grams, is briefly described by Mr. George Merrill in No. 1905, vol. xlii., of the Proceedings of the U.S. National Museum. The stone was found by Mr. J. T. Freed, of Scott City, and from the slightly glazed surface of an obvious fracture it is not improbable that other fragments may yet be found. The polished stone is of a greenish colour, and contains particles of iron and iron sulphide, one to two millimetres diameter, evenly disseminated throughout its mass. A fragment of the stone, 175 grams in weight, is in the U.S. National Museum collection, the main mass remaining in the possession of Mr. Freed.

ASTRONOMICAL SOCIETIES.—The report of the Hampstead Scientific Society for 1911 shows the existence of an energetic and well-organised astronomical section, which uses the observatory on practically all fine nights, and holds meetings at which many interesting papers are read. The current report contains a lecture on "Star Streams," given by Mr. Eddington, and some reproductions of drawings of Mars made by members throughout the 1911-12 opposition. Venus near inferior conjunction was also regularly observed.

The seventh annual report of the Antwerp Astronomical Society shows that the society, with nearly 250 members, is in a flourishing condition. Its popular lectures in French and Flemish are well attended, and its instruments are well used. During the present year the society hopes to acquire a much larger and better equipped observatory on the roof of a proposed new communal school.

THE MUSEUMS ASSOCIATION AT DUBLIN.

AFTER an interval of eighteen years, Dublin has for the second time been the meeting-place of the Museums Association. The gathering lasted from Tuesday, July 9, until Friday, July 12, inclusive. No observant attendant at both meetings could fail to be struck by the widening of interest noticeable in the recent, as compared with the earlier, meeting. In 1894 the members of the association, except for a preliminary municipal reception, were left very much to themselves, and the papers and discussions dealt for the most part with questions of museum technique. This year the proceedings were opened by the Lord Mayor of Dublin, who attended in state, and the Viceroy of Ireland was present at the association's annual dinner. An official welcome was also personally offered by the Secretary of the Department of Agriculture and Technical Instruction. The programme of the meeting was drawn up to illustrate the relation of museums to general education, and though art collections and picture galleries furnished the special subject of most of the papers, the principles expounded might be also applied by the natural history curator.

The president, Count G. N. Plunkett—like his predecessor of 1894, the late Dr. Valentine Ball—is director of the National Museum in Dublin. In a thoughtful address he pointed out that nowadays even a small town desires a museum in touch with popular wants and national life; that a well-arranged museum is more instructive than a text-book, because less dogmatic and more incentive to thought; and that the museum gallery ought to be, as much as the class-